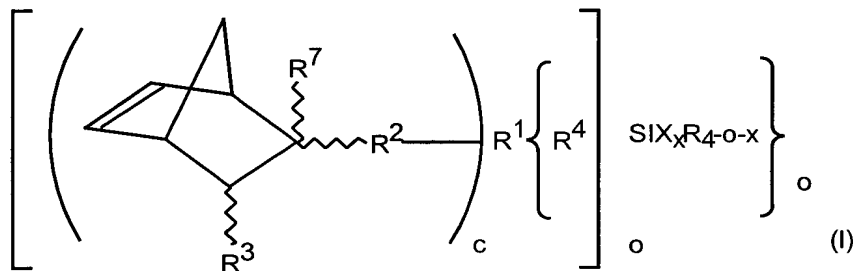


1. (2x amended) A process for producing a semipermeable membrane, comprising

(a) preparing a low-viscosity to resinous liquid produced by hydrolytic polycondensation of a material comprising at least one compound selected from the group consisting of:

(i) a compound of formula I



wherein

R = alkyl, alkenyl, aryl, alkylaryl or arylalkyl comprising between 1 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino,

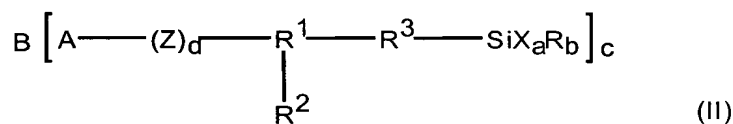
R<sup>1</sup> = alkylene, arylene, arylenealkylene or alkylenearylene comprising between 0 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino,

R<sup>2</sup> = alkylene, arylene, arylenealkylene or alkylenearylene comprising between 0 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino,

R<sup>3</sup> = hydrogen, R<sup>2</sup>-R<sup>1</sup>-R<sup>4</sup>-SiX<sub>x</sub>R<sub>3-x</sub>, carboxyl, alkyl, alkenyl, aryl, alkylaryl or arylalkyl comprising between 1 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino,

- $R^4 = (CHR^6-CHR^6)_n^-$ , where  $n = 0$  or  $1$ ,  $-CHR^6-CHR^6-S-R^5-$ ,  $-CO-S-R^5-$ ,  $CHR^5-CHR^6-NR^6-R^5-$ ,  $-Y-CS-NH-R^5$ ,  $-S-R^5$ ,  $-Y-CO-NH-R^5$ ,  $-CO-O-R^5-$ ,  $-Y-CO-C_2H_3(COOH)-R^5-$ ,  $-Y-CO-C_2H_3(OH)-R^5-$  or  $-CO-NR^6-R^5-$ ,
- $R^5 =$  alkylene, arylene, arylenealkylene or alkylenearylene comprising between 1 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino,
- $R^6 =$  hydrogen, alkyl or aryl having 1 to 10 carbon atoms,
- $R^7 =$  hydrogen, alkyl, alkenyl, aryl, alkylaryl or arylalkyl comprising between 1 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino,
- $X =$  hydrogen, halogen, hydroxyl, alkoxy, acyloxy, alkylcarbonyl, alkoxy carbonyl or  $NR''_2$ , where  $R'' =$  hydrogen, alkyl or aryl,
- $Y = -O-$ ,  $-S-$  or  $-NR^6-$ ,
- $Z = -O-$  or  $-(CHR^6)_m-$ , where  $m = 1$  or  $2$ ,
- $a = 1, 2$  or  $3$ , where  $b = 1$  if  $a = 2$  or  $3$ ,
- $b = 1, 2$  or  $3$ , where  $a = 1$  if  $b = 2$  or  $3$
- $c = 1$  to  $6$ ,
- $x = 1, 2$  or  $3$ , where  $a+x = 2, 3$  or  $4$ ;

(ii) a compound of formula II



wherein

- $B =$  a straight-chain or branched organic radical having at least one  $C = C$  double bond and 4 to 50 carbon atoms,
- $R =$  alkyl, alkenyl, aryl, alkylaryl or arylalkyl comprising between 1 to 15 carbon atoms, further optionally comprising an atom or group selected

from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino,

$R^3$  = alkylene, arylene, arylenealkylene or alkylenearylene comprising between 0 to 10 carbon atoms, wherein any of these radicals optionally is interrupted by an atom or group selected from the group consisting of oxygen atom, sulfur atom, and amino group,

X = hydrogen, halogen, hydroxyl, alkoxy, acyloxy, alkylcarbonyl, alkoxy carbonyl or  $NR''_2$ , where  $R''$  = hydrogen, alkyl, aryl or alkylaryl,

A = O, S or NH if  $d = 1$  and  $Z = CO$  and

$R^1$  = alkylene, arylene or alkylenearylene comprising between 1 to 10 carbon atoms, wherein any of these radicals optionally is interrupted by an atom or group selected from the group consisting of oxygen atom, sulfur atom, and amino group, and

$R^2$  = COOH or H,

or

A = O, S, NH or COO if  $d = 1$  and  $Z = CHR'$ , where

$R' = H$ , alkyl, aryl or alkylaryl, and

$R^1$  = alkylene, arylene or alkylenearylene comprising between 1 to 10 carbon atoms, wherein any of these radicals optionally is interrupted by an atom or group selected from the group consisting of oxygen atom, sulfur atom, and amino group, and

$R^2 = OH$

or

A = O, S, NH or COO if  $d = 0$  and

$R^1$  = alkylene, arylene or alkylenearylene comprising between 1 to 10 carbon atoms, wherein any of these radicals optionally is interrupted by an atom or group selected from the group consisting of oxygen atom, sulfur atom, and amino group, and

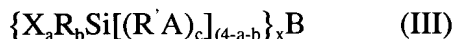
$R^2 = OH$ ,

or

A = S if  $d = 1$  and  $Z = CO$  and

- $R^1$  = N and  
 $R^2$  = H,  
 $a$  = 1, 2 or 3,  
 $b$  = 0, 1 or 2, where  $a+b = 3$ ,  
 $c$  = 1, 2, 3 or 4;

(iii) a compound of formula III



wherein

- $A$  = O, S,  $PR''$ ,  $POR''$ ,  $NHC(O)O$  or  $NHC(O)NR''$ ,  
 $B$  = a straight-chain or branched organic radical derived from a compound  $B'$  having at least one (if  $c = 1$  and  $A = NHC(O)O$  or  $NHC(O)NR''$ ) or at least two  $C = C$  double bond(s) and 5 to 30 carbon atoms,  
 $R$  = alkyl, alkenyl, aryl, alkylaryl or arylalkyl comprising between 1 to 15 carbon atoms, [further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino],  
 $R'$  = alkylene, arylene or alkylenearylene,  
 $R''$  = hydrogen, alkyl, aryl or alkylaryl,  
 $X$  = hydrogen, halogen, hydroxyl, alkoxy, acyloxy, alkylcarbonyl, alkoxycarbonyl or  $NR''_2$ ,  
 $a$  = 1, 2 or 3,  
 $b$  = 0, 1 or 2,  
 $c$  = 0 or 1,  
 $x$  = an integer whose maximum value corresponds to the number of double bonds in the compound  $B'$  minus 1, or is equal to the number of double bonds in the compound  $B'$  if  $c = 1$  and  $A$  is  $NHC(O)O$  or  $NHC(O)NR''$ ,

wherein said alkyl and alkenyl radicals optionally are substituted straight-chain, branched or cyclic and comprise 1 to 20 carbon atoms, the aryl optionally is a substituted phenyl, naphthyl or biphenyl, the alkoxy, acyloxy, alkylcarbonyl, alkoxycarbonyl, alkylaryl, arylalkyl, arylene, alkylene and alkylenearyl radical is a derivative of said alkyl or aryl radical;

(iv) a compound of formula IV



wherein

R = alkyl, alkenyl, aryl, alkylaryl or arylalkyl comprising between 1 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino,

X = hydrogen, halogen, hydroxyl, alkoxy, acyloxy, alkylcarbonyl, alkoxy carbonyl or  $NR''_2$ , where  $R''$  = hydrogen, alkyl, aryl or alkylaryl,

Y = an organic radical having 1 to 30 carbon atoms and 1 to 5 mercapto groups,

a = 1, 2 or 3,

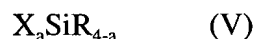
x = 1, 2 or 3, where  $a+x = 2, 3$  or 4;

and

(v) a precondensate derived from a compound represented by any of formulae I to IV

and wherein said hydrolytic polycondensation material further optionally comprises at least one compound selected from the group consisting of:

(1) a compound of formula V



wherein

R = alkyl, alkenyl, aryl, alkylaryl or arylalkyl comprising between 1 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino,

X = hydrogen, halogen, hydroxyl, alkoxy, acyloxy, alkylcarbonyl, alkoxy carbonyl or  $NR''_2$ , where  $R''$  = hydrogen, alkyl, aryl or alkylaryl,

a = 1, 2 or 3; and

(2) a precondensate derived from a compound of formula V;

wherein said hydrolytic polycondensation is conducted by adding a substance selected from the group consisting of water, a solvent, and a condensation catalyst, and wherein said molar ratio of the sum of the compound(s) of formulae I, II, III and IV to the sum of compound(s) of formula V is between 1:0 and 1:20,

- C 1
- (b) forming a membrane from the said low-viscosity to resinous liquid,
  - (c) optionally drying the membrane, and
  - (d) curing the membrane by forming an organic network using a process selected from the group consisting of thermal curing, radiation-induced curing and chemically induced curing, optionally or if necessary, in the presence of additives which are addition-copolymerizable and/or can be subjected so an addition and/or polyaddition reaction.

9. (2x amended) The process as claimed in claim 1, wherein said liquid comprises at least one polycondensate derived from at least one compound of formula VI, having the structure:



wherein

E = -CO-NH-, -CS-NH-, -CH<sub>2</sub>-CH<sub>2</sub>- or -CH<sub>2</sub>-CH(OH)-;

C 2

R = alkyl, alkenyl, aryl, alkylaryl or arylalkyl comprising between 1 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino;

R<sup>5</sup> = alkylene, arylene, arylenealkylene or alkylenearylene comprising between 1 to 15 carbon atoms, wherein optionally one or more radicals is interrupted by an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino;

R<sup>6</sup> = alkylene, arylene, arylenealkylene or alkylenearylene comprising between 1 to 15 carbon atoms, wherein optionally one or more radicals is interrupted by an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino;

- X = hydrogen, halogen, hydroxyl, alkoxy, acyloxy, alkylcarbonyl, alkoxy carbonyl or  $\text{NR}''_2$ , where  $\text{R}''$  = hydrogen, alkyl, aryl or alkylaryl;
- a = 1, 2 or 3;
- n = 2, 3, 4 or 5;
- x = 1, 2 or 3, where  $a+x = 2, 3$  or 4.

10. (2x amended) The process as claimed in claim 1, wherein said liquid comprises polycondensates comprising at least one compound selected from the group consisting of a compound according to formula II or III wherein radical B has at least one acrylate or methacrylate group, and comprises a compound according to the formula VI



wherein

- E = -CO-NH-, -CS-NH-, -CH<sub>2</sub>-CH<sub>2</sub>- or -CH<sub>2</sub>-CH(OH)-;
- R = alkyl, alkenyl, aryl, alkylaryl or arylalkyl comprising between 1 to 15 carbon atoms, further optionally comprising an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino;
- R<sup>5</sup> = alkylene, arylene, arylenealkylene or alkylenearylene comprising between 1 to 15 carbon atoms, wherein optionally one or more radicals is interrupted by an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino;
- R<sup>6</sup> = alkylene, arylene, arylenealkylene or alkylenearylene comprising between 1 to 15 carbon atoms, wherein optionally one or more radicals is interrupted by an atom or group selected from the group consisting of oxygen atom, sulfur atom, ester, carbonyl, carboxyl, amido, and amino;
- X = hydrogen, halogen, hydroxyl, alkoxy, acyloxy, alkylcarbonyl, alkoxy carbonyl or  $\text{NR}''_2$ , where  $\text{R}''$  = hydrogen, alkyl, aryl or alkylaryl;
- a = 1, 2 or 3;
- n = 2, 3, 4 or 5;
- x = 1, 2 or 3, where  $a+x = 2, 3$  or 4.

Please add the following new claim:

C<sup>3</sup> 20. (New) The process for producing a semipermeable membrane according to claim 1, wherein in the formula IV the substituent Y is an organic radical having 1 to 20 carbon atoms and 1 to 4 mercapto groups.